

Name: \_\_\_\_\_

Test Date: \_\_\_\_\_

**POLLUTION STUDY GUIDE**

1. Define **water pollution**:
2. Distinguish between **point source pollution** and **non-point source pollution**:
  - a. **Point source pollution**

b. **Non-point source pollution**

3. Define **water quality**:

Identify the following tests and their significance in water quality:

- a. **Dissolved oxygen**
  - b. **Temperature**
  - c. **Turbidity**
  - d. **Nutrients (nitrates and phosphates)**
  - e. **Fecal bacteria**
4. Describe the following types of **water pollution**:
    - a. **Thermal pollution**:
    - b. **Sediment pollution**:

Chemical pollutants:

- c. **Organic pollutants.**

Describe PCB's and the problems associated with their use:

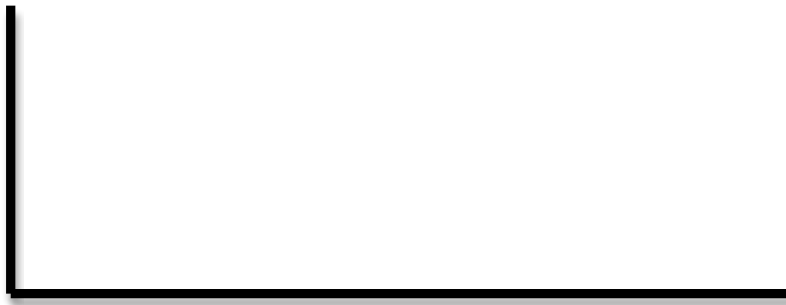
Identify THREE ways that **oil spills** and are cleaned or recovered:

Identify the TWO major US waterway oil spills and the amount of oil in barrels for each:

d. **Inorganic pollutants:**

Describe **eutrophication**:

Draw and label the **oxygen sag** and **biological oxygen demand** (graph both below):



Describe the sequence of events that may result from the discharge of animal waste in a waterway:

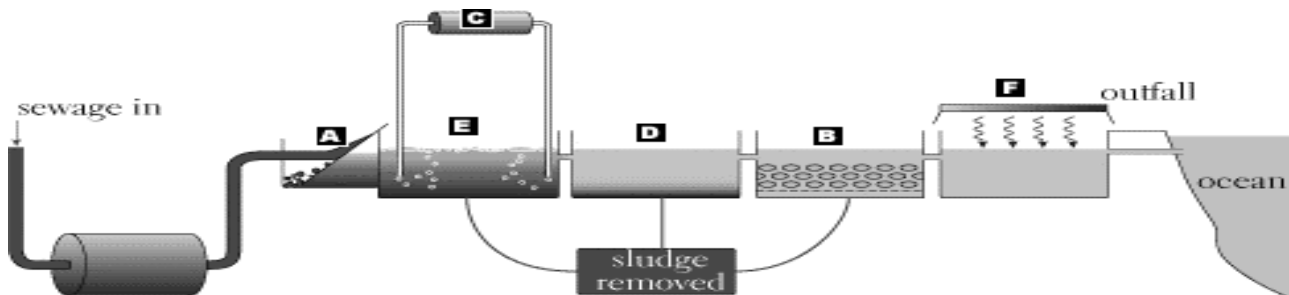
e. **Sewage pollution**

Identify the effects of the following **pathogens** associated with waste pollution:

- i. Cholera
- ii. Dysentery
- iii. Giardia
- iv. Schistosomiasis

5. Define **sewage**:

6. Identify the steps in **sewage treatment**. Identify removal process and what is removed in each step. Use the diagram label the probable steps in sewage treatment.



a. Pre- / Primary treatment

b. Secondary treatment

c. Disinfection & release

7. Identify TWO possible outcomes of **sludge effluent**:

Identify ONE item that sewage treatment is not designed to remove and describe why it is not removed:

Other than the Clean Water Act, identify TWO pieces of legislation that regulate waterways:

8. Discuss the **Clean Water Act** and the different amendments to the CWA:

9. Discuss the **Safe Drinking Water Act**:

10. Describe what happened at **Minamata Bay**:

Identify the TWO **heavy metals** & their sources associated with neurological problems:

11. Identify the characteristic of the THREE **types of waste** and percentages that constitute landfills:

a. \_\_\_\_\_ % **Municipal**

b. \_\_\_\_\_ % **Industrial**

c. **Hazardous**

12. Identify TWO environmental effects of **E-waste**:

Identify TWO methods for **disposal of E-waste**:

13. Describe the difference between **open dumps** and **landfills**:

14. Discuss **landfill** criteria and leachate:

Include a basic drawing of a sanitary landfill in the box:



15. Describe **hazardous waste** and the method of storage:

Identify TWO environmental effects of hazardous waste:

16. Discuss the process of **reduce, reuse, recycle...**:

17. Explain **integrated waste management (IWM)**:

18. Identify the biological importance of **compost**:

19. Identify the characteristics of TWO types of **energy recovery**:

a.

b.

20. Describe the **recycling** of:

a. Paper:

b. Glass:

c. Aluminum:

d. Plastic

21. Identify TWO environmental effects of:

a. **Noise pollution**

b. **Light pollution**

22. Describe the process of rain becoming **acid rain**:

Identify the **pH of normal rainfall**: \_\_\_\_\_ Identify the **pH of acid rain**: \_\_\_\_\_

23. Identify THREE **effects of acid rain**:

- 1.
- 2.
- 3.

24. Explain how CO<sub>2</sub> enters the oceans and the effect on BOTH pH and organisms:

25. Identify how **natural processes** (volcanic activity, lightning) can cause air pollution:

26. Define **Air Pollution**:

Describe why indoor air pollution can be more dangerous than outdoor air pollution:

27. Explain the many characteristics of the **Clean Air Act**:

28. Use the chart to complete the list of primary & secondary ambient air pollutants.

29. Identify the SIX **indoor air pollutants**, their impact, and how to prevent:

- a.
- b.
- c.
- d.
- e.
- f.

30. Describe the **sick building syndrome**:

31. Identify TWO problems that increase and TWO that decrease **indoor air pollution**:

32. Identify TWO problems that increase and TWO that decrease **outdoor air pollution**:

33. Describe FOUR **pollution control devices/processes**:

a.

b.

c.

d.

34. Define **risk**:

Identify the FOUR types of **hazards**:

35. Define **biological hazards**:

Identify the TWO diseases that increased mortality in the 1980's: \_\_\_\_\_

36. Describe why children are more susceptible to disease and toxins:

37. Identify the FIVE **diseases**, how they are **transmitted**, :

a. **SARS**

b. **Malaria / West Nile Virus**

c. **Cholera**

d. **Tuberculosis**

e. **Schistosomiasis**

38. Identify the leading **causes of death** in the world: 1<sup>st</sup>: \_\_\_\_\_ 2<sup>nd</sup>: \_\_\_\_\_

Identify the leading causes of **preventable deaths in the US**: 1<sup>st</sup>: \_\_\_\_\_ 2<sup>nd</sup>: \_\_\_\_\_

39. Explain the **analysis of risk**:

40. Describe the following **economic impacts** on the environment:

a. **Full-cost pricing**

b. **Cost-benefit analysis:**

41. Describe the events that occurred at Chernobyl:

42. Describe the events that occurred at Union Carbide in Bhopal, India: